



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : Confirmation No. 1300
Takamasa FUCHIKAMI et al. : Attorney Docket No. 2005_1402A
Serial No. 10/550,387 : Group Art Unit 1621
Filed November 2, 2005 : Examiner Jennifer Y. Cho
PROCESS FOR PRODUCING FLUORINE-
CONTAINING ACRYLIC ACID ESTER : Mail Stop: AMENDMENT

DECLARATION UNDER 37 CFR 1.132

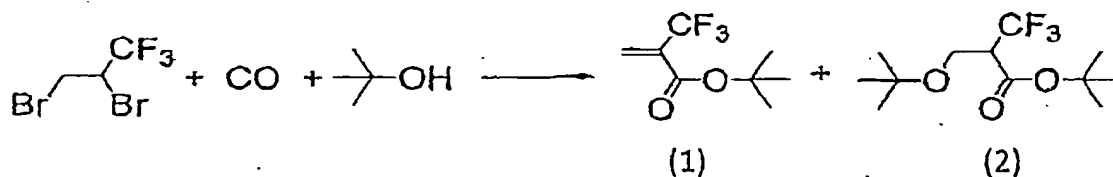
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Kenji Tokuhisa, one of the inventors named in the above-identified application, hereby declare as follows:

When producing fluorine-containing acrylic acid esters, the production process of the present invention, which employs two kinds of bases in combination, improves the yield of the target compounds significantly and suppresses the generation of alkoxy fluorine-containing propionic acid ester, as compared with the production process using a base singly as disclosed in the Matteoli et al. reference applied by the Examiner. This fact can be confirmed by the following experimental example which I conducted.

EXPERIMENTAL EXAMPLE



An autoclave was charged with $\text{BrCH}_2\text{CH}(\text{CF}_3)\text{Br}$ (1.0 mmol), $(\text{Ph}_3\text{P})_2\text{PdCl}_2$ (0.01 mmol), t-BuOH (1.0-1.2 mmol), a base (or bases), and toluene (2 mL). The system was pressurized with carbon monoxide to 1.0 MPa, and the reaction mixture was then stirred at 120°C for 15 hours. The resulting product was analyzed. The conditions of this Experimental

Example are the same as those of Example 1, on page 12 of the original specification. The experimental results are shown in the table below. The results include the cases (entry 1 and 2) where a base was used singly in the production of fluorine-containing acrylic acid ester, as well as the case (entry 3) where two kinds of bases are simultaneously used, in accordance with the production process of the present invention.

Entry	Base:mmol	Conversion	Yield	
		%	1 (%)	2 (%)
1	Et ₃ N:2.2	100	18.4	3.0
2	t-BuONa:2.2	100	16.9	1.0
3	Et ₃ N:2.0; t-BuONa:0.2	100	55.5	0.4

When two kinds of bases are used in combination in accordance with the present invention, the target compound of fluorine-containing acrylic acid ester can be obtained at a significantly higher yield (1), whereas the generation of the by-product of alkoxy fluorine-containing propionic acid ester can be suppressed with a lesser yield (2). Accordingly, the effect when using two kinds of bases simultaneously, in accordance with the present invention is not taught or suggested by the combination of references cited by the examiner.

I further declare that all statements made herein of my own knowledge are true, and that all statements on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: July 3, 2008 at Yamaguchi, Japan

Kenji Tokuhisa
Kenji Tokuhisa